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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,663	07/11/2000	VINCENT LEE C. CHIANG	66040-9651	3250

7590 01/29/2002

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EXAMINER

BAUM, STUART F

ART UNIT	PAPER NUMBER
1638	16

DATE MAILED: 01/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/530,663	CHIANG ET AL.
	Examiner	Art Unit
	Stuart Baum	1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-53 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) _____ is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) 1-53 are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Election/Restrictions

Election of restriction dated 9/4/01 is acknowledged. However, the present application has been transferred from the previous Examiner to a second Examiner. Upon reviewing the restriction, it is deemed necessary to withdraw the restriction of 7/31/01. The following restriction is set forth.

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in response to this action, to elect a single invention to which the claims must be restricted.

Applicant is reminded that nucleotide sequences are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute **independent and distinct** inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq (see MPEP 803.04 and 2434). In the present application, the Applicant has disclosed in the specification that there are two isoforms of 4-coumarate Co-Enzyme A ligase in aspen with distinct expression patterns and functions which Applicant has designated Pt4CL1 and Pt4CL2 even though within the claims Applicant has referred to the genus name, 4-

coumarate Co-Enzyme A ligase. Because of the disclosed distinctions, some of the claims have been restricted to different Groups.

Applicant is requested to select one isoform and 37 CFR 1.821(d) requires the use of the assigned sequence identifier (e.g. SEQ I.D. NO: X) in all instances where the description or claims of a patent application discuss sequences.

Group I, claim(s) 1-4, 6-10, 12-17, 39-44, 50, and 52 drawn to a method of altering cellulose content and lignin structure using 4-coumarate Co enzyme A operably linked to 35S CaMV promoter.

Group II, claim(s) 1-5, 10-11, 18-28, 51, and 53 drawn to a method of increasing growth, decreasing lignin content, altering lignin structure and increasing cellulose content using 4-coumarate Co enzyme A ligase in antisense orientation.

Group III, claim(s) 33-37 drawn to a method of altering growth and disease resistance using 4-coumarate Co enzyme A ligase in antisense orientation and transgenic plant.

Group IV, claim(s) 38 and 49 drawn to a transgenic plant comprising a recombinant DNA comprising 4-coumarate Co enzyme A ligase, a method of altering levels of phenylpropanoids or other secondary metabolites and a method to increase disease resistance.

Group V, claim(s) 29-31, and 45-46 drawn to a promoter expressing in xylem tissues and transgenic plant.

Group VI claim 48, drawn to a xylem expressing promoter and a method for altering lignin content, lignin structure, cellulose content or wood quality.

Group VII claim(s) 29-30, 32, 45, and 47 drawn to a promoter expressing in epidermal cells and transgenic plant.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The claims are not linked by a single technical feature because they are not drawn to a single nucleic acid sequence encoding a single amino acid sequence. Instead, the claims are drawn to either of the two isoforms of 4-coumarate Co enzyme A ligase (4CL) and their respective promoters, from any organism and of any nucleotide sequence, which encodes any 4CL protein from any organism and of any amino acid sequence.

Furthermore, the claims are not linked by a single special technical feature because they do not constitute an advance over the prior art. At least Group VI is taught or suggested by Boudet et al (U.S. Patent 5,451,514) who teach a method of altering lignin composition in a plant by transforming the plant with cinnamyl alcohol dehydrogenase, which is a gene involved in lignin biosynthesis (see, e.g., claims 1-2, 6 and 11).

In the instant case the nucleic acid molecules used in each of the inventions have distinct and separate structural and physical properties and Inventions I-IV and VI can use DNA sequences other than those specified in the respective Inventions.

Inventions V and VII are distinct from each other because the DNA molecules have distinct functions, i.e., they each specify distinct spatial and temporal expression patterns.

Inventions I-IV and VI and Inventions V and VII are distinct from each other because the DNA molecules of Inventions I-IV and VI encode polypeptides whereas Inventions V and VII are DNA molecules that specify specific expression patterns.

Because these inventions are distinct for the reasons given above and the search required for each of the groups is distinct and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Each of Inventions I-VII are capable of being separately made, independently used, and the patentability of one does not render the others obvious or unpatentable.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart Baum whose telephone number is (703) 305-6997. The examiner can normally be reached on Monday-Friday 8:30AM – 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on (703) 306-3218. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 305-3014 or (703) 305-3014 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the legal analyst, Kim Davis, whose telephone number is (703) 305-3015

Stuart Baum Ph.D.

January 24, 2002

ELIZABETH F. McELWAIN
PRIMARY EXAMINER
GROUP 1800
Elizabeth F. McElwain